

External dimensions as recorded by collector:—

Head and body 534 mm.; tail 361; hind foot 98; ear 33.

Skull: condylo-basal length 101; zygomatic breadth 53·5; interorbital breadth 20·5; intertemporal breadth 17·5; palatal length 55; breadth between outer sides of  $p^4$  33; length of bullæ 19; breadth between outer surfaces of bullæ 38·5. Length of  $p^4$  on outer edge 9·8.

*Hab.* Niaji, 20 miles N.E. of Oban, Southern Nigeria. Another specimen without skull from Oban.

*Type.* Adult female. B.M. no. 10. 6. 1. 14. Original number 20. Collected 17th October, 1909, by P. A. Talbot, Esq.

The Museum now possesses six skulls of *M. naso* from different localities in the Cameroons, and these are so uniformly larger than Mr. Talbot's specimen that I only hesitate as to whether the latter ought not to be referred to a different species. The difference in the size and lateral extension of the bullæ is especially noticeable.

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LXIX.—*On new Mammals from the Islands of the Johore Archipelago, South China Sea.* By HERBERT C. ROBINSON, C.M.Z.S.

*Crocidura klossii*, nom. nov.

*Crocidura major*, Kloss (Wagler), Ann. & Mag. Nat. Hist. (8) vii. p. 117 (1911); id. Journ. Fed. Malay States Mus. iv. pp. 194, 195 (1911).

Mr. G. S. Miller has pointed out to me that Mr. Kloss's name for this shrew from Great Redang Island is antedated by *Crocidura major*, Wagler, Isis, p. 1218 (1832), a synonym of *Crocidura russula*, and I therefore substitute the above name for it.

*Crocidura aoris*, sp. n.

*Type.*—Adult female (skin and skull), No. 166/12, Selangor Museum, collected at Batu Berhala, Pulau Aor, Johore Archipelago, South China Sea, 13th June, 1912, by H. C. Robinson and E. Seimund. Original no. 4859.

*Characters.*—A large member of the subgenus *Crocidura*, slightly larger than *C. klossi*, but very distinctly paler above and with a marked liver-brown coloration on the breast and anterior portion of the abdomen.

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*Colour*.—Above silvery grey, somewhat darker on the muzzle, feet, hands, and lower portion of the back, the base of the fur very slightly lighter. General colour beneath similar but paler on the throat, pelage of the chest and upper abdomen with a very decided wash of liver-brown. Tail very finely annulated, dull black, above and below, furnished with a few long whitish hairs towards the base. Vibrissæ silvery grey, blackish at the extreme base. No lateral scent-glands in the only specimen (female) available.

*Skull and teeth*.—The skull very closely resembles that of *C. klossii*, but the interpterygoid space is narrower and more parallel-sided and the molar series, viewed from above, are less divergent and more parallel, so that the palate appears narrower in proportion to its length than is the case with *C. klossii*.

*Measurements*.—Collectors' external measurements (taken in the flesh):—

Head and body 102 (97\*) mm.; tail 78 (69); hind foot 16 (16); ear 11 (10·6).

Skull: greatest length (excl. incisors) 23·8 (23·0); basal length 21·1 (20·9); palatal length 10·3 (10·0); lachrymal breadth of rostrum 4·9 (4·7); greatest breadth above molars 7·9 (7·8); cranial breadth above mastoid 10·5 (10·5); maxillary tooth-row, including incisors, 11·0 (10·8); mandibular tooth-row (including incisors) 10·0 (10·0).

*Specimens examined*.—One, the type.

*Remarks*.—The species seems closely allied to *C. lepidura* † from East Sumatra, though that form has apparently a longer foot and, relatively to the breadth of skull above the posterior molars, a rather longer muzzle. The skull of the only specimen known is, however, very imperfect.

*Atherurus macrourus pemangilis*, subsp. n.

*Type*.—Adult female (skin and skull), No. 341/12, Selangor Museum, collected on Pulau Pemanggil between Pulau Aor and Pulau Tioman, Johore Archipelago, South China Sea, 16th June, 1912, by Museum collectors. Original no. 5014.

*Characters*.—A race of the mainland *A. macrourus* (Linn.), differing in its very much smaller size. Separated from *A. m. tionis* ‡, of Tioman, by its shorter nasals and deeper

\* Measurements in parentheses those of the type of *C. klossii*.

† Proc. U.S. Nat. Mus. xxxiv. p. 662 (1908).

‡ Thomas, Journ. Fed. Malay States Mus. ii. p. 105 (1908).

muzzle, and from *A. m. zygomaticus*\*, of Aor, by the large size of the lachrymal and by the absence of the tooth-like process on the under side of the malar.

*Colour*.—Somewhat darker than either *A. m. macrourus* or *A. m. tionis*, closely resembling *A. m. zygomaticus*.

*Skull*.—Quite distinct from that of its nearest geographical neighbour, *A. m. zygomaticus*, in that the lachrymal is distinctly visible when the skull is viewed from above, the zygomatic arch much narrower, and the tooth-like process of the malar not even indicated. Intertemporal constriction less marked than in the mainland form, the nasals shorter than in that from Tioman, the muzzle being also deeper and the posterior portion of the frontals more inflated. Frontopremaxillary suture in advance of the posterior termination of the nasals and not in line with it as in the two related forms.

*Measurements*.—Collectors' external measurements of type (taken in the flesh):—

Head and body 456 (516 †) mm.; tail — (176); hind foot 64 (60); ear 35 (34).

Cranial measurements: upper length 89 (91); condylobasilar length 75 (77); greatest breadth 45 (48); nasals  $24.5 \times 13$  ( $27 \times 15$ ); intertemporal breadth 24.3 (26); height of muzzle on diastema 20.8 (18.5); height of crown above palate 24.2 (25); palatilar length 35 (39); diastema 23.2 (28); length of upper tooth-row (crowns) 16.3 (16.8).

The dimensions of an adult male are:—

Head and body 490 (586 †) mm.; tail 180 (304); hind foot 64 (73); ear 36 (38).

Cranial measurements: upper length 89.5 (102); condylobasilar length — (94); greatest breadth — (51); nasals  $24.5 \times 14.5$  ( $26.9 \times 15$ ); intertemporal breadth — (27); height of muzzle on diastema 21 (22); height of crown above palate — (27.8); palatilar length — (43.5); diastema 28.5 (31.8); length of upper tooth-row (crowns) 16.1 (17.0).

*Specimens examined*.—Four, all from the type locality.

*Remarks*.—Exceedingly abundant among the rocks on the

\* Miller, Smithsonian Misc. Coll. 45, p. 42, pl. ii. fig. 4 (1903); Lyon, Proc. U.S. Nat. Mus. xxxii. pp. 587, 588, 593 (1907).

† Measurements in parentheses those of the type of *Atherurus tionis*.

‡ Measurements in parentheses those of an adult male *Atherurus macrourus* from Sungei Siput, Central Perak, Selangor Museum, No. 966/11.

higher portions of Pulau Pemanggil, this porcupine is more closely allied to the form from Tioman than it is to that of Aor, though in the case of the other species inhabiting Pemanggil their affinities are rather with those of the latter island.

*Sciurus vittatus famulus*, subsp. n.

*Type*.—Adult male (skin and skull), No. 153/12, Selangor Museum, collected on Pulau Dayang, near Pulau Aor, Johore Archipelago, South China Sea, June 16th, 1912, by H. C. Robinson and E. Seimund. Original no. 4938.

*Characters*.—A dwarfed form of the *vittatus* group, closely approximating in size to its geographical neighbour *Sc. v. aoris*, Miller, but in colour intermediate between that form and *Sc. v. peninsularis* from the mainland of Johore and Singapore Island. Skull: greatest length (mean of ten specimens) 44.7, zygomatic breadth 26.0, against 49.4 and 28.0 in the type of *Sc. v. peninsularis*.

*Colour*.—Upper parts a fine grizzle of black and buffy olivaceous, less greyish than in *Sc. v. aoris* and less rufescent than in *Sc. v. peninsularis*. Feet and hands grizzled black and golden buff, the latter in excess. Cheeks grizzled greyish buff; a buff eye-ring. Buffy-white side-stripe broader and not quite so clearly defined as in *Sc. v. peninsularis*, but the black stripe shorter and narrower and not so dark, but still sharply defined and not largely obscured by grizzling as in many specimens of *Sc. v. aoris*. Tail like back, but annulations more pronounced and with the terminal portion strongly washed with ochraceous rufous, a tint entirely absent in *Sc. v. aoris*. Under surface ochraceous rufous, rather less ochraceous than in *Sc. v. peninsularis*, but not nearly so buffy as in *Sc. v. aoris*. Throat, upper chest, and under surface of fore limbs golden buff.

*Measurements*.—Collectors' external measurements (taken in the flesh):—

Head and body 176 (199\*) mm.; tail 158 (198); hind foot 40 (47.5); ear 16.5 (16).

Cranial measurements: greatest length 45.1 (51.2); condylo-basilar length 38.8 (43.1); interorbital breadth 16.2 (18.1); zygomatic breadth 26.0 (29.8); cranial breadth 20.8 (23.2); median length of nasals 13.1 (15.4); diastema 10.3 (11.1); upper molar series, including  $pm^3$ , 8.3 (9.6).

*Specimens examined*.—Ten, all from the type locality.

\* Measurements in parentheses those of an adult male *Sciurus v. peninsularis* from Changi, Singapore Island, Selangor Museum, No. 1743/08.

*Remarks.*—Though Pulau Dayang is separated from Pulau Aor by a channel which is little more than a quarter of a mile wide, there is a minimum depth of twenty-five fathoms between the two islands, and it is unlikely that any inter-communication can take place between the races of squirrels and rats found on either side of the strait. The ten specimens from Pulau Dayang when mixed with thirty from Pulau Aor can be picked out without the slightest difficulty by any person able to appreciate marked differences in tint. The affinities of the present form and *Sc. v. tenuirostris* inhabiting Tioman are decidedly with the mainland races, while those of *Sc. c. aoris* and *Sc. v. pemangilensis* are rather with those inhabiting the Natunas and Anambas.

*Epimys surifer pemangilis*, subsp. n.

*Type.*—Adult male (skin and skull), No. 447/12, Selangor Museum, collected on Pulau Pemanggil, Johore Archipelago, South China Sea, 16th June, 1912, by Museum Collectors. No. 4999.

*Characters.*—In size about equal to *E. s. grandis* and *E. s. flavigrandis*\* (Kloss), but much brighter in colour than either of these races, young and unabraded specimens approaching *E. s. leonis*† from Singapore in clearness of tint.

*Colour.*—Upper parts ochraceous orange, brightest on the flanks, nape, and limbs, darkened on the shoulders, back, and rump with the brown tips of the spines. Upper part of the head, muzzle, and patches round the eyes earthy brown. Cheeks and sides of the head pale yellowish buff, not whitish at the base of the vibrissæ, which are dark brown, paler at the tips. Hands and feet whitish, without darker stripe, sharply defined in the case of the feet from the colour of the limbs. Beneath white, this colour continued as an ill-defined stripe on the outer side of the leg and the inner side of the arms to the ankles and wrists. Tail black above and at the tip, whitish beneath.

*Skull and teeth.*—Skull stout and heavily built as in *E. s. grandis* and *E. s. flavigrandis*, but with the rostrum rather more slender and the nasals narrower than in these races. Anterior edge of infraorbital plate sloping slightly forwards. Palatal foramina rather longer and broader and bullæ smaller and flatter than in any of the other forms. Teeth with no differential characters.

\* Ann. & Mag. Nat. Hist. (8) vii. p. 119 (1911); Journ. Fed. Malay States Mus. iv. pp. 209-211 (1911).

† Journ. Fed. Malay States Mus. iv. p. 170 (1911).

*Measurements.*—Collectors' external measurements of type (taken in the flesh):—

Head and body 220 (208\*) mm.; tail 175 (180); hind foot 42 (43); ear — (23).

Cranial measurements: greatest length 48·0 (48·0); basal length 42·3 (42); palatal length 22·2 (22); length of nasals 19·0 (20·7); greatest breadth of combined nasals 4·9 (5·3); shortest distance between tips of nasals and lachrymal notch 19·8 (19·2); diastema 14·0 (14·0); upper molar row 7·1 (7·4); length of palatal foramina 7·9 (7·0); breadth of combined foramina 4·1 (3·9); zygomatic breadth 20·9 (21·5); cranial breadth 17·0 (17·2); depth of rostrum at anterior extremity of palatal foramina 9·0 (9·1); breadth of rostrum midway between hensation and palatal foramina 6·3 (7·4).

*Specimens examined.*—Thirteen skins and skulls and one additional skull, all from the type locality.

*Remarks.*—From *E. surifer microdon* † (Kloss) from Tioman this race differs mainly in its more heavily built skull, the teeth not reduced in size, and in the absence of a buff gorget across the throat. In *E. s. microdon* also the white of the under surface is, as a rule, broadly separated from the ankles by the buff of the thighs.

*Epimys surifer aoris*, subsp. n.

*Type.*—Adult male (skin and skull), No. 445/12, Selangor Museum, collected on Pulau Aor, Johore Archipelago, South China Sea, 15th June, 1912, by H. C. Robinson and E. Seimund. Original no. 4947.

*Characters.*—Very similar to the preceding race and with a similarly robust skull, but colour decidedly less intense. Head rather darker. Anterior margin of infraorbital plate almost vertical; nasals broader, the anterior margin much less receding.

*Colour.*—Mingled black and ochraceous buff, hardly brighter on the flanks than elsewhere, but pelage of all the adult specimens somewhat abraded. Top of head, muzzle, and patches round the eyes darker brown than in the allied forms. No whitish patch at the roots of the vibrissæ. White of the under surface continued as a more or less ill-defined line to the wrists and ankles.

*Skull and teeth.*—Skull generally similar to that of *E. s. pemangilis*, with the differences noted above. Outline

\* Measurements in parentheses those of the type of *Mus surifer flavigrandis*.

† Journ. Fed. Malay States Mus. ii. p. 145 (1908).

of cranium, viewed from above, rather more rounded, the fronto-parietal ridge less sharply deflected at the suture. Nasals broader and much less sharply cut away at the anterior extremity. Teeth similar to those of *E. s. pemangilis*.

*Measurements.*—Collectors' external measurements (taken in the flesh):—

Head and body 214 (204\*) mm.; tail 185 (188); hind foot 41 (42); ear 22 (23).

Cranial measurements: greatest length 47.8 (49); basal length 42.0 (41.7); length of nasals 17.4 (19.8); greatest breadth of nasals 5.8 (5.6); shortest distance between tips of nasals and lachrymal notch 19.0 (20.4); palatal length 22.3 (22); diastema 13.9 (13.4); length of palatal foramina 7.1 (6.9); breadth of combined palatal foramina 4.1 (3.9); zygomatic breadth 21.2 (21); cranial breadth 17.3 (17.2); depth of rostrum at anterior extremity of palatal foramina 8.9 (9.3); breadth of rostrum midway between hensenion and palatal foramina 7.1 (8.0); upper molar row 7.2 (7.5).

*Specimens examined.*—Fifteen skins and skulls and one additional skull, all from the type locality.

*Remarks.*—This race can be readily separated from the adjacent *E. s. pemangilis* by its duller coloration and by the shorter and less acuminate nasals, which seem a fairly constant feature.

LXX.—*Eight New Fishes from Baluchistan.* By Dr. ERICH ZUGMAYER, of the Zoological Museum, Munich.

AMONG a collection of marine and freshwater fishes which I made during a journey along the Mekran coast and in the interior of Baluchistan the following appear to be new.

I. MARINE FISHES.

*Platycephalus platysoma*, sp. n.

Distinct from all other species by its strongly depressed body, whose depth is less than  $\frac{1}{2}$  of the total length. Length of head a little over  $3\frac{1}{2}$  in total length, breadth of head  $4\frac{3}{4}$  in the same. Interorbital space flat, equal to 2 diameters of

\* Measurements in parentheses are those of the type of *Mus surifer grandis*.